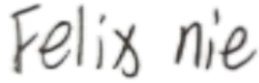
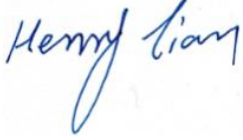




Report No.: ATJC25101380005300S

TEST REPORT Switchboards UL 891:2019	
Report Number.:	ATJC25101380005300S
Tested by (+signature)	Felix nie 
Approved by (+signature)	Henry Tian 
Date of issue:	Nov. 22, 2025
Total number of pages:	20
Name of Testing Laboratory preparing the Report.....:	Shenzhen Anteng Testing Technology Co., Ltd. Floor 5, No. 11, Hebei Industrial Zone, Hualian Community, Longhua Street, Longhua District, Shenzhen, China.
Applicant's name.....:	Riches hardware Co., Ltd
Address	Building 168 Guangren Road,Xintian Group,Dongya Village Committee,Ruhu Town,Huicheng Distrct,Huizhou City,Guangdong Province, China
Test specification:	
Standard	UL 891:2019 Ed.12+R: 21Mar2025 CSA C22.2 No. 244:19 2024
Test procedure.....:	UL Safety
Non-standard test method.....:	N/A
General disclaimer:	The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the Testing Laboratory, responsible for this Test Report.



Report No.: ATJC25101380005300S

Product Name	Industrial Control Switchboard
Trade Mark	N/A
Test item description	The products covered by this report are Industrial Control Switchboard
Manufacturer	Riches hardware Co., Ltd
Address	Building 168 Guangren Road,Xintian Group,Dongya Village Committee,Ruhu Town,Huicheng Distrct,Huizhou City,Guangdong Province, China
Model/Type reference	MNS, GCK, GCS, VFD, ATS, ACC, ACP, AP, AL, AF, APE, ALE, AD, AS, AR, AW, JXF, XM, XL-21, GGD, GGJ, DB, PDU, ODC, OSG, ODB, OTC, AH, AM, AA, AJ
Ratings	Input:1000V~, 50/60Hz, 4000kW Max
Testing:	
Date of receipt of test item	Oct. 13, 2025
Date (s) of performance of tests	Oct. 13 – Nov. 22, 2025
General remarks	
"(See Enclosure #)" refers to additional information appended to the report.	
"(See appended table)" refers to a table appended to the report.	
Throughout this report a ☐ comma / ☒ point is used as the decimal separator.	

1.0 Critical Features

Recognized Component - A component part, which has been previously evaluated by an accredited certification body with restrictions and must be evaluated as part of the basic product considering the restrictions as specified by the Conditions of Acceptability.

Listed Component - A component part, which has been previously Listed or Certified by an accredited Certification Organization with no restrictions and is used in the intended application within its ratings.

Unlisted Component - A part that has not been previously evaluated to the appropriate designated component standard. It may also be a Listed or Recognized component that is being used outside of its evaluated Listing or component recognition.

Critical Features/Components - An essential part, material, subassembly, system, software, or accessory of a product that has a direct bearing on the product's conformance to applicable requirements of the product standard.

Construction Details - For specific construction details, reference should be made to the photographs and descriptions. All dimensions are approximate unless specified as exact or within a tolerance. In addition to the specific construction details described in this Report, the following general requirements also apply.

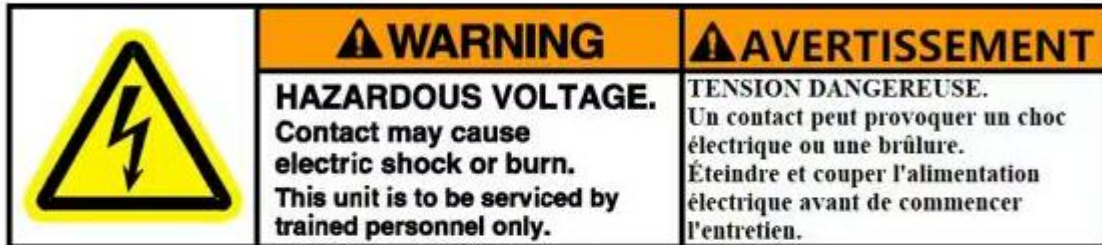
1. Mechanical Assembly - Components such as switches, fuseholders, connectors, wiring terminals and display lamps are mounted and prevented from shifting or rotating by the use of lockwashers, starwashers, or other mounting format that prevents turning of the component.
2. Corrosion Protection - All ferrous metal parts are protected against corrosion by painting, plating or the equivalent.
3. Grounding - This product is not provided with a means of grounding as it is Adapter Supply Power.
4. Internal Wiring - Internal wiring is routed away from sharp or moving parts. Internal wiring leads terminating in soldered connections are made mechanically secure prior to soldering. Recognized Component separable (quick disconnect) connectors of the positive detent type, closed loop connectors, or other types specifically described in the text of this report are also acceptable as internal wiring terminals. At points where internal wiring passes through metal walls or partitions, the wiring insulation is protected against abrasion or damage by plastic bushings or grommets.
5. letters shall be at least 1.6mm:
Marked on an exterior surface of luminaire that is normally visible:
Applicant's name, Basic or Multiple Listee's name as defined in section;
Model number;
Date of manufacturer.
6. Installation, Operating and Safety Instructions - Instructions for installation and use of this product are provided by the manufacturer.
The instruction manual shall include the below information:
— Proper normal maintenance and use method.
— Other warnings that will not lead to misuse.

2.0 Illustrations

Illustration 1 - Instructions manual



↵



↵

WARNING: DISCONNECT SUPPLY BEFORE SERVICING.↵

AVERTISSEMENT: COUPER L'ALIMENTATION AVANT L'ENTERTIEN ET LE DÉPANNAGE.↵

↵

WARNING: DISCONNECT ALL POWER AND WAIT 10 MIN. BEFORE SERVICING. MAY CAUSE ELECTRIC SHOCK.↵

AVERTISSEMENT: COUPEZ L'ALIMENTATION ET ATTENDEZ 10 MINUTES AVANT ENTRETIEN, PEUT PROVOQUER UNCHOC ÉLECTRIQUE.↵

↵

CAUTION: REPLACE FUSE WITH SAME TYPE AND RATING.↵

ATTENTION : REMPLACER LE FUSIBLE PAR UN FUSIBLE DU MÊME TYPE ET DU MÊME COURANT NOMINAL.↵

↵

DISCONNECT SUPPLY BEFORE CHANGING FUSE.↵

COUPER L'ALIMENTATIO N AVANT DE CHANGER LE FUSIBLE.↵

3.0 Test Summary		
Determination of the result includes consideration of measurement uncertainty from the test equipment and methods. The product was tested as indicated below with results in conformance to the relevant test criteria.		
The following tests were performed:		
Test Description	UL 891	Result
Temperature test	9.2.2	PASS
Dielectric voltage withstand test	9.2.3	PASS
Short circuit	9.2.4	PASS
Test circuit calibration	9.2.5	PASS
Investigation of ground fault protection field test instructions	9.2.6	PASS
Bonding resistance test	9.2.7	PASS
Mold stress relief test	9.2.8	PASS
Latch pull test	9.2.9	PASS
Single threaded nut test	9.2.10	PASS
Impact and pressure test-Observation windows	9.2.11	PASS
A representative sample of the product covered by this report has been evaluated and found to comply with the applicable requirements of the standards indicated in 1 Page.		

4.0 Manufacturer and Production Tests

The manufacturer agrees to conduct the following Manufacturing and Production Tests as specified:

Required Tests

Dielectric Voltage Withstand Test

4.1 Dielectric Voltage Withstand Test

Method

One hundred percent of production of the products covered by this Report shall be subjected to a routine production line dielectric withstand test.

The test shall be conducted on products, which are fully assembled. Prior to applying the test potential, all switches, contactors, relays, etc., should be closed so that all primary circuits are energized by the test potential. If all primary circuits cannot be tested at one time, then separate applications of the test potential shall be made.

The test voltage specified below shall be applied between primary circuits and accessible dead-metal parts. The test voltage may be gradually increased to the specified value but must be maintained at the specified value for one second or one minute as required.

Test Equipment

The test equipment shall incorporate a transformer with an essentially sinusoidal output, a means to indicate the applied test potential, and an audible and/or visual indicator of dielectric breakdown.

The test equipment shall incorporate a voltmeter in the output circuit to indicate directly the applied test potential if the rated output of the test equipment is less than 500VA.

If the rated output of the test equipment is 500VA or more, the applied test potential may be indicated by either:

- 1 - a voltmeter in the primary circuit;
- 2 - a selector switch marked to indicate the test potential; or
- 3 - a marking in a readily visible location to indicate the test potential for test equipment having a single test potential output.

In cases 2 and 3, the test equipment shall include a lamp or other visual means to indicate that the test potential is present at the test equipment output. All test equipment shall be maintained in current calibration.

Products Requiring Dielectric Voltage Withstand Test:

<u>Product</u>	<u>Test Voltage</u>	<u>Test Time</u>
All products covered by this Report.	2000V	60s

5.0 Critical Components						
Photo#	Item no.	Name	Manufacturer/ trademark ²	Type/ model ²	Technical data and securement means	Mark(s) of conformity ³
1	1	LOW-VOLTAGE AC POWER CIRCUIT BREAKERS	ABB SPA - ABB SACE DIVISION (E194191)	E6.2V-A 4000 Ekip Touch LSI 4p F HR	4000A Frame - Types SACE E6.2H, E6.2V. Rated short circuit 100KA Short time 100KA	cURus
1	2	LOW-VOLTAGE AC POWER CIRCUIT BREAKERS	ABB SPA - ABB SACE DIVISION (E194191)	E4.2V-A 4000 Ekip Touch LSI 3p WHR	3200A Frame - Types SACE E4.2H, E4.2V. Rated short circuit 100KA Short time 100KA	cURus
1	3	LOW-VOLTAGE AC POWER CIRCUIT BREAKERS	ABB SPA - ABB SACE DIVISION (E194191)	E2.2S-A 2000 Ekip Touch LSI 3p WHR	1600A Frame - Types SACE E2.2S, Rated short circuit 65KA Short time 65KA	cURus
1	4	LOW-VOLTAGE AC POWER CIRCUIT BREAKERS	ABB SPA - ABB SACE DIVISION (E194191)	E2.2S-A 2000 Ekip Touch LSI 3p WHR	1200A Frame - Types SACE E2.2S, Rated short circuit 65KA Short time 65KA	cURus
1	5	LOW-VOLTAGE AC POWER CIRCUIT BREAKERS	ABB SPA - ABB SACE DIVISION (E194191)	E2.2S-A 2000 Ekip Touch LSI 3p WHR	800A Frame - Types SACE E2.2S, Rated short circuit 65KA Short time 65KA	cURus
1	6	Low voltage molded case circuit-breakers	ABB SPA - ABB SACE DIVISION (E194191)	XT5S 600 TMA 600-6000 3p FF UL	600A Molded Case Circuit Breakers Voltage Rating 577Y/1000Vac Short circuit rating 65KA at 1000Vac	cURus
1	7	Power meters	Jiangsu ACREL Electric MFG. Co., Ltd. No.5 DongMeng Road, NanZha Street, Wuxi, Jiangsu 214405 China	APM521-1-2	L-N 66/230/277 V AC, Hz, L-L 115/400/480 V AC, 50/60 Hz, three Phase (CAT III) or L-N 400 VAC, L-L 690 VAC, 50/60 Hz, three Phase (CAT II)	CSA80254 482
1	8	Fuse	ABB SpA – Vittuone(E32775 0)	Series E90/32, 10x38 mm (midget) fuse type, Fuseholders	10A COMPONENT - FUSEHOLDERS, CARTRIDGE FUSE Component Fuseholder, Series E90/32, 10x38 mm (midget) fuse type, Fuseholders	cURus

5.0 Critical Components

Photo#	Item no.	Name	Manufacturer/ trademark ²	Type/ model ²	Technical data and securement means	Mark(s) of conformity ³
1	9	Intermediate Relay	ABB Stotz-Kontakt GmbH(E244330)	CR-MX024DC4L	Industrial applications, open type	cURus
1	10	Main Circuit 600 V AC	ABB Stotz-Kontakt GmbH Eppelheimer Str 82 Heidelberg, Baden-Wurtemberg 69123 Germany(E1378 61)	MS116-32 Manual Motor Starter 25 ... 32 A	Rated Impulse Withstand Voltage (Uimp): Main Circuit 6 kV Rated Insulation Voltage (Ui): 690 V	cURus
1	11	Main Circuit 600 V AC	ABB Stotz-Kontakt GmbH Eppelheimer Str 82 Heidelberg, Baden-Wurtemberg 69123 Germany(E1378 61)	MS116-25 Manual Motor Starter 20 ... 25 A	Rated Impulse Withstand Voltage (Uimp): Main Circuit 6 kV Rated Insulation Voltage (Ui): 690 V	cURus
1	12	WHTY - Switches, Open Type	ABB Oy, Smart Power MUOTTITIE 2 A PO BOX 622 VAASA FI-65101 Finland	OT600U22P	OT600, followed by U or US, followed by 02, 20, 11, 12, 21, 03, 30, 13, 31, 04, 40, 22, may be followed by K or P, may be followed by -1000	cURus
1	13	Power Circuit and Motor-mounted Apparatus	MEAN WELL ENTERPRISES CO., LTD.(E215312)	HDR-100 HDR-30	Switching Power Supply Model(s) HDR-100-24, HDR-30-24, INPUT:AC85-277V OUTPUT:DC24V 50/60Hz	cURus
1	14	Dry-Type Transformers	Wuhan Shidawei Electric Co., Ltd.	CBST-1KVA 600V-380V 60Hz	General Purpose Transformer CBST-1KVA 600V-380V 60Hz	cURus
1	15	Push-in spring terminal	NINGBO SUPU ELECTRONICS CO LTD(E330768)	TPV2.5-2-GY	Connection method:Push-in connection,IEC Rated Current:24A,IEC Rated Voltage:1000V,Number of connections:2,Number of levels: 1, Cross section:26-12AWG	cURus

5.0 Critical Components

Photo#	Item no. 1	Name	Manufacturer/ trademark ²	Type/ model ²	Technical data and securement means	Mark(s) of conformity ³
1	16	Wire	HEBEI HUATONG WIRES & CABLES GROUP CO LTD (E365883)	RPVU90 RPV90	Photovoltaic Cable:Max. 2000V 105℃, Min. 16AWG	cURus
1	17	Engine Generator Control	ZHENGZHOU SMARTGEN TECHNOLOGY CO LTD (E494145)	HGM6120CA N, HGM6110CA N, HGM6120NC, HGM6110NC, HGM6120N, HGM6110N	Engine Generator Control	cURus
1	18	Distribution Cabinet Enclosure	Riches hardware Co,Ltd	MNS	MNS Rear Low Voltage Switchgear Min thickness:1.5mm stainless steel	NR

NOTES:

- 1) Not all item numbers are indicated (called out) in the photos, as their location is obvious.
- 2) "Various" means any type, from any manufacturer that complies with the "Technical data and securement means" and meets the "Mark(s) of conformity" can be used.
- 3) Indicates specific marks to be verified, which assures the agreed level of surveillance for the component. "NR" - indicates Unlisted and only visual examination is necessary.

6.0 Product Photographs

Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



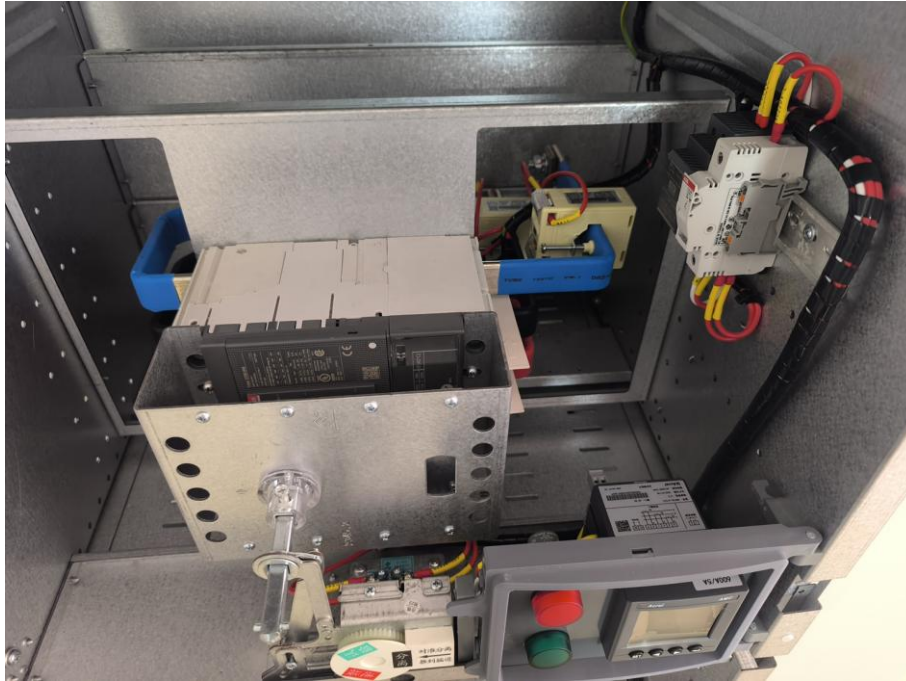
Photo 8



Photo 9



Photo 10



[illegible]

----- End of Report -----